



**UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/405,781	09/27/99	BENDA	

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023571
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NAPERVILLE IL 60540

IM52/0226

EXAMINER

TRAN, T

ART UNIT	PAPER NUMBER
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1741

DATE MAILED:

02/26/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/405,781

Applicant(s)
Benda, George

Examiner
Thao Tran

Group Art Unit
1741



☒ Responsive to communication(s) filed on Jan 25, 2001

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-15 and 21 is/are pending in the application

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-15 and 21 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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DETAILED ACTION

Response to Amendment

1. This is in response to the Amendment received on January 25, 2001. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.
2. Claims 1-15 and 21 are currently pending in this application.

Claim Rejections - 35 USC § 112

3. Claims 1-9, 15, and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In view of the prior Office Action, the rejection of claims 1-9, 15, and 21 has been withdrawn due to the Amendments made thereto.

Claim Rejections - 35 USC § 102

4. Claims 1, 3, 6-7, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Goswami (US Pat. 5,835,840).

In view of the prior Office Action, the rejection of claims 1, 3, 6-7, and 9 has been withdrawn due to the Amendments made thereto.

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5. Claims 1-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamanaka et al. (US Pat. 5,919,422).

In view of the prior Office Action, the rejection of claims 1-14 has been withdrawn due to the Amendments made thereto.

Claim Rejections - 35 USC § 102/§ 103

6. Claims 1, 3, 6-7, and 9 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Goswami.

Goswami teaches a device for purifying air comprising: a reactor (system) comprising a photocatalyst; an ultraviolet light source, illuminating the photocatalyst; and a heater means (heating coil) (see Figs. 1-3; col. 3-4, lines 62-27). The reference further teaches the warm air passing the photocatalyst before being expelled (see Fig. 1).

Although Goswami is silent with respect to the heater means for drawing air into the reactor by convection and causing the air to rise past the photocatalyst before being expelled, it has been known within the skill in the art that when there is a heating means in a reactor, the air around the heating means would have been inherently caused to rise and this in turn would have inherently caused cooler air from outside to move into the reactor. See *In re Best*, 195 USPQ 430, 433 (CCPA 1977); *In re Napier* 34 USPQ2d 1782, 1784 (Fed. Cir. 1995); *In re Grasselli*, 218 USPQ 769, 775 (Fed. Cir. 1983).

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In regards to claim 3, Goswami teaches the photocatalyst being titanium dioxide (see col. 4, lines 29-33).

In regards to claim 6, Goswami teaches a means for controlling humidity in the reactor (see Fig. 1; col. 5, lines 19-22).

In regards to claim 7, Goswami teaches a fibrous mass holding the photocatalyst (see col. 4, lines 28-41).

In regards to claim 9, Goswami teaches the ultraviolet source emitting light of wavelength shorter than 387 nm (see col. 1, lines 54-57).

7. Claims 1, 3-14 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yamanaka et al.

In regards to claims 1 and 10, Yamanaka teaches a device for purifying air, comprising a reactor (photocatalyzer) which comprises a photocatalyst, an ultraviolet light source, a heater means, and an exit port (outlet port) (see abstract; Fig. 10; col. 21, lines 6-12; claims 1-3).

With respect to the function of the heater, the arguments are as set forth in paragraph 6 above.

In regards to claims 3 and 11, Yamanaka teaches the photocatalyst being primarily titanium dioxide (see abstract).

In regards to claims 4-5 and 12-13, Yamanaka teaches that titanium dioxide is doped with platinum (see col. 35, lines 36-38).

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In regards to claims 7-8, Yamanaka teaches that fiber glass is the fibrous mass holding the photocatalyst (see claims 1 and 7-8).

In regards to claims 9 and 13-14, Yamanaka teaches the ultraviolet light source emitting light of wavelength in the range of 360-400 nm which reads upon the instantly claimed ranges and also produces visible light (see col. 36, lines 16-33; claim 1).

Claim Rejections - 35 USC § 103

8. Claims 2, 10-11, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goswami as applied to claim 1 above.

Goswami is as set forth in claim 1 above and incorporated herein.

The arguments for claims 2, 10-11, and 13-14 are as set forth in the prior Office Action of November 9, 2000.

9. Claims 15 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka et al. as applied to claims 1 and 10 above.

Yamanaka is as set forth in claims 1 and 10 above and incorporated herein.

The arguments for claims 15 and 21 are as set forth in the prior Office Action of November 9, 2000.

10. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goswami as applied to claim 1 above, and further in view of Dimitrik (US Pat. 3,844,741).

Goswami is as set forth in claim 1 above and incorporated herein.

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The arguments for claims 2 and 10 are as set forth in the prior Office Action of November 9, 2000.

Response to Arguments

11. Applicant's arguments filed on January 25, 2001 have been fully considered but they are not found persuasive.

On page 8 of the Arguments, applicant contends that neither Goswami nor Yamanaka teaches a heater means for causing air to rise by convection. This contention is correct. However, as pointed out in paragraph 6 in this Office Action, it has been known that when there is a heat generator, the air around the heater will rise by convection due to an increase in entropy. This upward movement of the air molecules around the heater, in turn, will cause cooler air in other areas, usually outside or below the heater, to move towards the heater, where the molecules absorb heat and rise upward. The whole process of air movement will repeat in the manner mentioned above. Therefore, although neither Goswami nor Yamanaka uses the same functional language as that in the instant claims, since this is an inherent characteristic, Goswami's and Yamanaka's heater means would inherently have the same function as that in the instant claim.

With respect to the arguments concerning the electrical prongs on pages 9-10, the examiner disagrees with applicant. It has been known that electrical leads can be used to plug into an outlet directly. Moreover, the use of prongs to electrically connect a device to the electrical wiring system is conventional and cannot be considered novel.

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On page 13 of the Arguments, applicant points out that Yamanaka does not teach an opening that allows visible light to escape. Applicant further contends that Yamanaka teaches that if LED emits visible as well as UV light, a user can tell that it is in operation because the LED can produce an illuminating or displaying effect. The examiner would like to remind the applicant that having an opening or means to allow visible light to escape is conventional and there is no novelty to this feature.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao Tran whose telephone number is (703) 306-5698. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

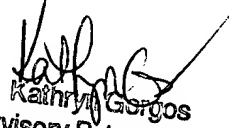
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathryn Gorgos, can be reached on (703) 308-3328. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0661.

tt

T.T.

February 14, 2001


Kathryn Gorgos
Supervisory Patent Examiner
Technology Center 1700